Monday 8:30
Subsidence evaluation of 350 building columns & role of HDS in a civil/survey firm in today's economy; Todd Beers, Nolte Assoc., Colorado
Nolte Associates is a 19-office, engineering services firm based in the Western United States and Mexico. The firm focuses on infrastructure including water resources, transportation, structural engineering, surveying and mapping, GIS, land development, program & construction management, and energy related services. The company outsourced laser scanning services until September 2008, when they acquired the first of two ScanStation 2's and associated Cyclone and CloudWorx software. Associate Todd Beers, Survey Group Director, will describe the use of HDS to accurately analyze 350 column supports on a 1,200' x 400' building site. The overall goal was to assess and monitor possible subsidence effects, which could cause problems as these 30' tall columns support crane rails. Accuracy of .02' was needed. In addition, Todd will describe how HDS is being used by Nolte to help offset the effects of a sharp slowdown in residential construction projects.

Monday 9:00
Plant fabrication QA prior to shipment for installation in another location; Seth Goucher, Cianbro Constructors, Brewer, Maine
Cianbro is a $450 million/yr, 2,500 multi-skilled, employee-owned company. The company self-performs all aspects of heavy industrial and civil construction projects, and also provides steel fabrication, modularized construction and construction management services. Seth Goucher, Chief Field Engineer at the Maine fabrication facility, will describe their use of a ScanStation 2 and HDS software for a recent, major refinery project in the Gulf Coast. Applications include incoming QA for large steel components, post-assembly QA vs design for fabricated modules, and pipe interface & tie-in checks prior to shipment to the plant site. Seth will also describe how HDS helps their business in a down economy by being able to tackle more projects with less resources.

Monday 9:30
Leica ScanStation C10: product insights; Dr. Greg Walsh, Leica Geosystems, California
The All-in-One Leica ScanStation C10 represents a major advance in time-of-flight scanners. The scanner not only features the versatility of the ScanStation class of laser scanner in a single, compact unit, but it also features significant advances in productivity, including a Smart X-Mirror™ design that enables fast full dome scanning and efficient oscillating scanning for selected areas. Greg will provide detailed product insights, including several not-immediately-apparent advances in this recent, major product announcement.

Monday 10:30
Using HDS on cell towers to grow and diversify a surveying business; Douglas Brown, Star Net Geomatics, Scotland
HDS users since 2007, Star Net Geomatics Ltd is a private, mid-sized business that provides general surveying services plus specialized engineering support services to the telecommunications industry. These capabilities helped Star Net secure a substantial

contract in May 2009 with Arqiva, the UK's leading provider of broadcast and mobile communications infrastructure, for the provision of UK wide telecommunication site laser scanning surveys. Managing Director Douglas Brown will describe the company's extensive activities in applying HDS for cell towers, including using rich High-Definition Survey data from their ScanStation and ScanStation 2 scanners to support a wide array of informational needs for this major client.

Monday 11:00
Combining HDS with a multi-media services business; Richard Lasater, Smart Multimedia Inc., Texas
Building on a core team of educators, graphic artists, 3D modelers/compositors, editors and writers focused on the creation of digital learning tools and high definition digital video, this enterprising small business added High-Definition Surveying to its capabilities in 2008 with an HDS6000, Cyclone and CloudWorx software. President Richard Lasater will describe how things have gone for this new enterprise, where they've had commercial success and were they've run into challenges, and why. The presentation will also describe how they've been running with TruView and one of their more interesting projects, a funded heritage project for the USS Texas battleship.

Monday 11:30
Scanning at major incidents; Valentin Vanhecke, Dutch National Police, The Netherlands
Police agencies in The Netherlands have been among the earliest and most active users of High-Definition Surveying for forensic investigations. Currently four Leica HDS scanners are in use by different agencies in the country. One of these agencies, the Dutch National Police Agency has a ScanStation 2 and a Leica HDS6000. The Dutch National Police Agency's Valentin Vanhecke will describe when and how they use these tools to help investigate major incidents, including incidents where both types of scanners are used together, and what the challenges and benefits have been for their investigations.

Monday 1:30
Using two fixed ScanStation 2's for automatic monitoring of a large civil construction project; Pierre Gouvin, Geo-Instruments, Rhode Island
Established in 2003, Geo-Instruments designs, constructs, and monitors systems to measure movement, pressure, and other variables of structures, soils, and rock. In 2009, the company acquired two (2) ScanStation 2 scanners for integration into in a fixed monitoring system in Washington state. Twice per day, the system automatically monitors various infrastructure elements potentially impacted by the construction of a major light rail tunnel beneath the existing highway I-5. President Pierre Gouvin will describe why he chose HDS, what was involved in the system integration, and how the system is performing today for this breakthrough application.

Monday 2:00
Point cloud animations: how we use them for effective marketing & client deliverables and how we create high-end, small file-size animations using freeware; Hovig Devejian, Precision Civil Engineering Inc., California

Many organizations, like Fresno-based Precision Civil Engineering, have found point cloud animations to be valuable both for educating potential clients about the benefits of High-Definition Surveying and as distinct client deliverables. However, it's not always easy to create animations of point clouds that flow smoothly with a consistent high-quality appearance and are suitably small for publishing on a website. HDS project specialist Hovig Devejian will describe methods for producing attractive point cloud animations that not only look better, but also take up less disk space and take advantage of freeware for creating them.

Monday 2:30
Successful use of HDS for building construction QA, BIM updating, and other construction applications; Dale Stenning, Hoffman Construction, Washington
It has long been considered that some of the biggest potential benefactors of HDS are contractors and owner operators, as they can realize the greatest economic benefits via reduced project costs, project schedule savings, and smoother operations & maintenance. Hoffman Construction has owned Leica Geosystems laser scanners since 2003 for its own internal use during construction. Presenter Dale Stenning, who drove the adoption of laser scanning by Hoffman, will describe various applications of the technology in the construction phase of projects, how HDS has added value for several BIM projects, and how Hoffman has implemented HDS for BIM projects.

Monday 3:30
Systems integrator insights for using HDS6000's in a mobile mapping system; Bert Jeeninga, QPS, The Netherlands
Today, there is a lot of interest in emerging mobile scanning solutions and applications. The potential advantages of mobile scanning are obvious; the potential challenges are not so obvious. In this presentation, Bert Jeeninga, Managing Director of QPS, a leading systems integrator and software developer for kinematic mapping systems, will provide valuable insights into the challenging aspects of implementing mobile scanning to achieve desired project results. He will dive into each major element of a mobile scanning system, focusing on the key risk areas of such implementations. To date, QPS has successfully provided mobile scanning system integration services for three Leica Geosystems customers who own HDS6000's.

Monday 4:00
Applying HDS in Korea to landmark heritage sites: workflow & business insights; Siro Kim, WIPCO, Korea
WIPCO started laser scanning in 1999 with a Cyrax 2400 and CGP software and today owns several HDS scanners, including a ScanStation C10. WIPCO provides laser scanning services and also serves as a dealer for Leica Geosystems HDS in Korea. Since the beginning, the heritage market has been an important one for WIPCO. During the current global economic situation, WIPCO and many of WIPCO's clients have found that heritage projects are receiving increased funding from government agencies. In this presentation, Siro Kim will describe several types of internationally famous heritage projects in Korea, including the 600-year old wooden statue Sunyemun, Korea's #1 national treasure, destroyed by fire in 2008 (but scanned by WIPCO in 2002!). He will

also provide business insights and workflow insights for being successful in the heritage market.

Monday 4:30
From experimenting with TruView to offering valuable portal services: Taking full advantage of TruView for the benefit or your clients, project stakeholders, and service business; Carlos Velasquez, Epic Scan, Oregon
Having started on the bleeding edge of laser scanning in 1999, Epic Scan has grown to a thriving 10-person laser scanning services company. The company uses time-of-flight and phase-based Leica scanners plus associated Cyclone and CloudWorx software. Like many other users, Epic Scan first heard of TruView at the 2006 HDS User Conference. Since then, Epic Scan has been steadily working with it internally and with clients. Today, the company is running flat out with TruView, having implemented full blown client portal services at the start of 2009. President Carlos Velasquez will describe how TruView is benefiting his clients, especially on architectural projects involving multiple contractors, and how Epic Scan is using it to their maximum advantage.

Tuesday 8:30
Using four HDS4500's and an HDS3000 for 3D city modeling for Istanbul city planning: the world's largest scanning project; Dr. Gurcan Buyuksalih, BIMTAS/IMP, Turkey
In 2003, UNESCO designated large portions of the historic Istanbul peninsula as protected areas. All development was stopped until a detailed and accurate as-built 3D model could be created for use by the city planning commission. This triggered the largest terrestrial scanning project ever undertaken: 48,000 buildings, 1500 hectares, 5.5 million square meters, 400 km of city streets. It involved ~120 field & office staff and five Leica HDS scanners over a period of 18 months, including one in mobile mode. The results are both breathtaking and immensely valuable to the city planning commission. Dr. Gurcan Buyuksalih, project manager, will give fascinating insights into this remarkable achievement and how it has spurred additional demand from other cities for similar projects.

Tuesday 9:00
Cyclone II TOPO: using it for faster HDS topographic mapping and to bring satellite offices up to speed quicker on HDS: Fred Bermudez, Nobles Consulting Group (NCG), Florida
Nobles Consulting Group is a large surveying & mapping firm with three (3) offices in Northern Florida. Into HDS since 2006, the company has been steadily increasing its emphasis on the technology, regularly taking advantage of the latest advances. To this end, Project Manager and the company's "HDS power user", Fred Bermudez, will describe how he has used Cyclone II TOPO software to create topographic maps faster and easier from laser scan data. In addition, he will describe the company's plans to move their current ScanStation 2 to a satellite office (the main office has recently acquired a ScanStation C10) and to bring the new office up to speed very quickly by training them on traversing with ScanStation 2 and mapping with Cyclone II TOPO.

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Tuesday 9:30
Case study project of HDS + GIS = Exciting new market; Dixon Brackett, Earthworx, Tennessee
Earthworx is a surveying, mapping, GIS and civil engineering firm based in Chattanooga, Tennessee. Leveraging their strong capabilities in GIS, the company has innovated an approach of incorporating HDS data into a GIS system that benefits contractors and Owner/Operators for capital projects and then further benefits Owner/Operators for the resulting built assets. President Dixie Brackett will describe a successful project that used this approach and will give insights into how HDS data was effectively incorporated.

Tuesday 10:30
Taking full advantage of HDS in a large plant engineering company- expanding on the portal service approach: Stein-Erik Mitchell, Aker Solutions, Norway
With 23,000 employees, Aker Solutions is a major plant engineering & construction services company that serves the process industries, including oil & gas, refining & chemicals, mining and metals, and power generation. Technical Manager Laser Scanning, Stein-Erik Mitchell, will describe the latest updates to Aker's extensive endeavors with HDS. Aker acquired their first Leica scanner in 2004 and today owns HDS6000's (2) and ScanStations (2) and also outsources laser scanning services from leading providers in the North Sea.

Tuesday 11:00
Effective use of HDS for building leasing; Lemuel Morrison, Mercator Land Surveying, New York
Into HDS since 2004, Mercator Land Surveying is a small consulting firm specializing in geomatics, based in New York City. In this presentation, Lem Morrison, president, will describe how his company used HDS to address the needs of a multi-story building leasing project for his developer & attorney clients. Originally retained to simply see if the property met the client's needs for usable space and identify encroachments, Mercator was able to use High-Definition Survey information via a simple approach to provide significant added-value benefits for the client, which then led to providing additional services well beyond the original scope.

Tuesday 11:30
More hidden gems in Cyclone, including Cyclone 7.0; Guy Cutting, Leica, California
Long time Cyra/Leica employee, Guy Cutting, Sr. Application Engineer, will unveil and demonstrate more Cyclone gems that can save hours in the office. He will also describe Cyclone 7.0's underlying architectural change, which Leica Geosystems refers to as its point cloud Engine (pcE), the benefits to users from this new software foundation, and new tools in Cyclone 7.0 for quickly accessing many of these previously hidden gems.

Tuesday 1:30 (General track)
Workflow insights: from HDS point clouds to a full, 3D intelligent building model in Revit for a theatre renovation project; Dietrich Evans, 3D Laser Imaging, Arizona

3D Laser Imaging is a one-person laser scanning services & consulting company that has been into laser scanning since its earliest days. For this presentation, Dietrich Evans will detail how he used an HDS6000 (250 positions, 3 days, one person) to document an historic theatre in New Orleans, damaged by hurricane Katrina and slated for restoration using Revit. Dietrich will describe a detailed, effective workflow for going from HDS data to a fully intelligent 3D model in Revit, including fine architectural details, via Cyclone and AutoCAD.

Tuesday 2:00 (General Track)
Case study project: creating 3D intelligent plant models with ScanStation, HDS6000 & CADWorx: Billy Therrell and Michael Small, MKEC Engineering, Kansas
MKEC is a 3-office, privately own engineering company based in the Midwestern US. They bought their first scanner (ScanStation) in 2006, added an HDS6000 in 2008, and today own ~12 licenses of Cyclone and CloudWorx. The company services government, commercial and industrial clients. Billy Therrell will describe a breakthrough project in which the client took advantage of HDS and MKEC's expertise to go all the way to a full 3D intelligent model of a storage well field with 50 well heads for a pipeline company. The presentation will describe project metrics, workflows, and added-value benefits to the client of receiving TruViews plus a 3D intelligent model created in COADE's CADWorx software.

Tuesday 2:30 (General Track)
How a mid-size civil/survey firm uses HDS for small intersection projects & secures a fair value for scanning with government agencies; Zhong Chen, Dynasty Group, IL & China
In today's economic environment, many firms are chasing smaller projects than they might have in the past. This can often lead to working with a new audience. When HDS is involved, it can mean an additional barrier as new clients may not already know about the technology and may not understand the overall cost/benefit advantages. Zhong Chen, president of Dynasty Group, will describe how his company successfully communicates the added value benefits of scanning small roadway intersections to achieve fair pricing for HDS services with government agencies - including their "financial buyer" who is watching the agency's spending more closely today.

Tuesday 3:30 (General Track)
Applications of mobile scanning using an HDS6000: Dr. Gunnar Graefe, 3D Mapping, Germany
Dr. Gunnar Graefe has a long history in developing and applying mapping methods for vehicular platforms. His company 3D Mapping specializes in mobile mapping, both via providing mobile mapping services and offering integration services. Key questions about mobile mapping today are "What applications can it be used for?" and "What applications has it proven beneficial for?" Dr. Graefe will provide answers to these questions based on his use of phase-based scanners like the HDS6000.

Tuesday 4:00 (General Track)

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Successfully providing HDS service to contractors and Owner/Operators: theme parks, buildings, and quantity surveys; Ed Oliveras, McKim & Creed, North Carolina

Many surveying organizations are comfortable providing HDS-based services to engineers or government agencies, but seem to fall short in fully connecting with contractors and Owner/Operators. In this presentation, industry veteran Ed Oliveras will describe application/project/workflow examples of HDS-based services and the quantified benefits of these services that his firm provides to contractors and Owner/Operators involving theme park & building construction projects, and quantity surveys. McKim & Creed, a large, multi-office, civil/survey firm based on the East Coast of the US, currently has two HDS3000's and an HDS6000.

Tuesday 4:30 (General Track)
Scanning-to-BIM: fuzzy hype or profitable reality? Panel discussion; Chris Zmijewski, Stantec; Mitch Schefcik, Optira; Dale Stenning, Hoffman Construction; Shane Lloyd, RLS Group.

Tuesday 3:30 (Heritage Track)
User case studies using 3DReshaper meshing software with HDS data, including heritage project applications; Pascal Lefebvre-Albaret, Technodigit/Hexagon, France

Many HDS users know that although Cyclone software is a very powerful and versatile software for managing and processing point cloud data, it is not as rich in capabilities and tools for working with large meshes created from point cloud data. This capability is often valuable in heritage applications and where complex surface geometries or 3D deviations controls are required. 3DReshaper software from Technodigit, and now available via Leica Geosystems, is specifically designed to work effectively with large, complex meshes to create desired deliverables. In this presentation, president Pascal Lefebvre-Albaret will detail several case studies in which HDS data was used with 3DReshaper software to create client deliverables.

Tuesday 4:00 (Heritage Track)
HABS/HAERS bridge documentation & modeling; Sam Billingsley, Jr., Geophysical Data Management, Tennessee

Creating deliverables for heritage documentation projects is different than creating traditional plans and models for engineering projects – even if it's for the same transportation agency clients serviced in the past. HDS power user Sam Billingsley Jr. will describe two projects that he did for DOT's that involved creating heritage drawings for HABS/HAERS surveys and workflows that he used to document detailed aspects of the bridge structures.

Tuesday 4:30 (Heritage Track)
Historic preservation projects: workflows and market updates; Brandon Walker, Midwestern Consulting, Michigan

Midwestern Consulting is a 2-office civil/survey firm based in Michigan. Starting with HDS in 2004, today the company has both an HDS6000 and HDS3000 which they use for a wide variety of applications. In the last year, the company has stepped up its HDS-based activities, which has taken them into more heritage projects. One of the successful applications of HDS in the heritage field is to create deliverables that can be used by the asset owners to help raise funding for restoration and refurbishment projects and for restoration project planning. In this presentation, Brandon Walker will describe workflows for creating these types of deliverables based on HDS data, including the use of SketchUp software.

Wednesday 8:30
The benefits of HDS for the Los Angeles Sheriff's Dept Crime lab and their clients; Sarah Watson, Los Angeles County Sheriff's Dept. Crime Lab, CA
The Los Angeles County Sheriff's Department Crime Lab acquired two (2) ScanStation 2's in 2007 plus associated Cyclone software, including Cyclone PUBLISHER. The department uses these tools for investigations, such as officer-involved shootings, where there could be potentially large lawsuits against the county of Los Angeles, which self-insures against such suits. Sarah Watson will discuss the types of scenes in which they've used HDS, field & office workflows, how their clients use the information, and what the benefits and challenges have been of using HDS for such investigations. She will also discuss the acceptance of HDS data for use in such investigations.

Wednesday 9:00
Use of HDS in tunnels: case studies, field & office workflows, client benefits; Mattias Jansson, SWECO, Sweden
SWECO is a 5,000-person multi-discipline consulting engineering company with headquarters in Sweden. Their 30-person survey department based in Falun, Sweden has seen a dramatic increase in the provision of laser scanning services. The company owns one phase-based scanner, regularly rents an HDS6000, and has also rented an HDS time-of-flight scanner. Half of their projects are industrial/plant or architectural as-builts and half are civil. Much of their civil HDS projects involve tunnel surveying, comparing actual new tunnel construction geometry versus design geometry. Mattias Jansson will describe the company's workflows (which include the requirement for same-day deliverables), typical project metrics, and benefits of using HDS for tunnel surveys. SWECO has helped their contractor clients write specs for using HDS for these types of surveys.

Wednesday 9:30
Monitoring internal wear on ball mills using ScanStation, Cyclone & Excel; Burton Christensen, Sunrise Engineering, Utah
Sunrise Engineering is a 15-division, multi-discipline consulting company located in the Western part of the US. The company acquired ScanStation 2, Cyclone and CloudWorx in 2008 and has quickly ramped up utilization of HDS across a wide range of clients. Survey Division Manager Burton Christensen will describe an interesting Operations & Maintenance application for HDS to monitor the wear on expensive linings for large, cylindrical ball mills used to crush rock & ore for a local major mining company.

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Monitoring is done on a quarterly basis for multiple mills. Burton will describe the desired deliverables, field & office methods, typical project metrics, and client benefits of using local HDS services.

Wednesday 10:30
User experience with Leica ScanStation C10; TBA

Wednesday 11:00
Using remote, high sample-rate HDS for monitoring of large, dynamic structures for deformation analysis; Dr. Christian Hesse, Dr. Hesse und Partner Ingenieure, Germany
Dr. Christian Hesse will describe innovative implementations of high measurement rate, phase-based laser scanning as a means of accurately monitoring the deformation of large structures as they are in motion. Applications include monitoring of a large canal lock gate which was getting stuck; a lifting structure for ships that was also getting stuck; and, analysis of the 3D geometry of wind turbine pylons as a function of rotor blade speed. Methods described involve the use of an HDS6000-type of scanner in 2D, profile mode.

Wednesday 11:30
Panel discussion: Heritage market: a business perspective in today's economy; Ben Kacyra, CyArk, California; Erwin Christofori, Christofori und Partners, Germany; Simon Barnes, International Consultant, England; Siro Kim, WIPCO, Korea; Z. Chen, Dynasty Group, Illinois & Beijing, China

Wednesday 1:o0
How a 2-person surveying firm takes advantage of HDS on a daily basis - in rainy England, no less! Timothy Beach, Multi-Limn Ltd., England
Multi-Limn is a two-person, family survey business which acquired a Leica HDS2500 scanner in 2002. They have since upgraded over time to an HDS3000, then to ScanStation 2. Ninety percent of the time, Timothy Beach uses the scanner in a 1-person crew situation, along with a robotic total station and RTK. Timothy will describe how and why he uses HDS literally every day on every project – which are mostly 1- or 2-day projects - and what the benefits of this daily usage approach are for Multi-Limn's survey business and for their clients. Example projects will be shown, including project workflows, and metrics.

Wednesday 1:30
Using ScanStation2 for monitoring tunnel, highway and canal construction plus new 3D building modeling process; Prof Hong Gyoo Sohn, Yonsei University, Korea
The Geomatics and GSIS Laboratory of Yonsei University acquired a ScanStation2 in 2008. The lab has other surveying and photogrammetric instruments and a current enrollment of 20 graduate students. Research areas include image processing, digital photogrammetry, remote sensing, LiDAR data processing (Aerial, Terrestrial), and Spatial Data acquisition and processing. Prof. Sohn will discuss HDS research project investigations and results for the comparison of design geometry against actual geometry at construction sites for canal construction, highway construction, and tunnel construction.

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He will also show results of an innovative approach of processing HDS data with advanced processing methods for efficient 3D building modeling.

Wednesday 2:00
How a traditional survey company started with HDS in 2008 to diversify, gain new customers & achieve competitive advantage; Esbjorn Nordesjo, Mattjanst, Sweden
It's one thing to say you want to use HDS to diversify and grow a small survey business, it's another to actually go out and do it successfully. Mattjanst AB was a typical small survey business in Sweden, with 15 staff and a focus on civil infrastructure projects & clients – until they added Esbjorn Nordesjo (formerly a corporate telecommunications executive) and an HDS scanner in 2008 to expand and diversify the business. Esbjorn will describe how Mattjanst has gone about the process of developing new business with HDS, where they've succeeded and where they haven't yet succeeded. The company has since grown to 20 employees.

Wednesday 2:30
Using ScanStation2 with X-ray, tomography, IR, & UV methods to find a lost DaVinci painting; Mike Olsen, Oregon State University, Oregon & UC San Diego, California
Mike Olsen, currently of Oregon State University, used a ScanSation 2 on a research project while he was at UC San Diego on the Palazzo Medici and Palazzo Vecchio in Florence, Italy. Part of this research project involves the use of High-definition Surveying to analyze and monitor potential structural problems in these historic buildings. Another part involves the use of HDS along with other analytical tools that can penetrate surfaces to try to locate a reportedly lost painting by Leonardo DaVinci at Palazzo Vechio. Mike Olsen will describe the overall technical approach and explain how HDS is being used to try to solve this intriguing art history puzzle.

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